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EXAMINER	
COUSO, JOSE L	
ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/747,870	PEARLMAN ET AL.	
	Examiner	Art Unit	
	Jose L. Couso	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-14 and 23-34 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,671,413 in view of Lei et al. (U.S. Patent No. 6,356,665). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed towards the same subject matter.

The claims in the present application define the invention differently from the claims in the issued U.S. Patent No. 6,671,413, however they are not patentably distinguishable from the claims in the other copending applications. In re White et al., 160 USPQ 417, In re Thorington et al., 163 USPQ 644.

For example comparing representative claim 1 of the present application with representative claim 1 of issued U.S. Patent No. 6,671,413: Claim 1 of the present application recites: A method for use in encoding and decoding blocks of data representing an image, each block comprising a data set, the method comprising for each block: (Claim 1 of issued U.S. Patent No. 6,671,413 recites: A method for use in

encoding and decoding a data set representing an image, comprising:); Claim 1 of the present application continues to recite: a first subroutine for partitioning the data set into first and second sets, for adding the first set into a list of insignificant sets (LIS), and for initializing a list of significant pixels (LSP), (Claim 1 of issued U.S. Patent No. 6,671,413 continues to recite: a first subroutine for partitioning the data set into first and second sets, for adding the first set into a list of insignificant sets (LIS), and for initializing a list of significant pixels (LSP),); Claim 1 of the present application continues to recite: a second subroutine for testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP; (Claim 1 of issued U.S. Patent No. 6,671,413 continues to recite: a second subroutine for testing the first and second sets for significance with respect to a threshold value, partitioning significant members of the first and second sets in accordance with first and second partitioning functions, respectively, and adding significant pixels to the LSP;); Claim 1 of the present application continues to recite: a third subroutine for refining the quantization of the pixels in the LSP; and a fourth subroutine for decrementing the threshold value, (Claim 1 of issued U.S. Patent No. 6,671,413 continues to recite: a third subroutine for refining the quantization of the pixels in the LSP; and a fourth subroutine for decrementing the threshold value,); Claim 1 of the present application continues to recite: wherein the second, third and fourth subroutines are repeated until encoding/decoding of the data set has been completed. (Claim 1 of issued U.S. Patent No. 6,671,413 continues to recite: wherein the second,

third and fourth subroutines are repeated until encoding/decoding of the data set has been completed.)

As the comparison shows the difference is merely in the processing of the data set representing the image. The current claims recite "a method for use in encoding and decoding blocks of data representing an image, each block comprising a data set, the method comprising for each block", the only difference been the recitation of "blocks" of data representing an image. While the issued claim did not explicitly recite blocks, the processing of the image data is done according to blocks of image data, as described for example in the specification on column 4, lines 48-56.

Lei discloses a quad-tree embedded image compression and decompression method and apparatus which provides for using blocks of data representing an image, each block comprising a data set, uses a list of insignificant sets (LIS) and a list of significant pixels (LSP) (refer for example to column 4, lines 36-48 and column 3, line 65 through column 4, line 8) .

Given the teachings of the two references and the same environment of operation, namely that of encoding and decoding blocks of image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for encoding and decoding blocks of data representing an image, each block comprising a data set as taught by Lei in U.S. Patent No. 6,671,413. This is an engineering design, providing for increased encoding and decoding efficiency as well as increased image quality as suggested by Lei (refer for example to column 2, lines 9-

17 and 46-52), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

Claims 2-7, 9 and 11-14 of the present application are word for word the same as claims 2-7, 9 and 11-14 of issued U.S. Patent No. 6,671,413.

Comparing claim 8 of the present application with claim 8 of issued U.S. Patent No. 6,671,413: Claim 8 of the present application recites: wherein the image comprises a sequence of images (Claim 3 of issued U.S. Patent No. 6,671,413 recites: wherein the image comprises a sequence of images which vary over time).

The comparison of claim 8 shows that the only difference is that in the present claims applicant recites the sequence of images do not "vary over time" whereas in the issued claim the sequence of images applicant recites "vary over time". Lei describes the sequence of images used in his system could be "progressive image transmission, internet browsing, scalable image and video databases, digital cameras, low delay image communications, etc." which shows that the sequence of images can either be varying over time or not varying over time. Therefore, to provide for "the sequence of images to not vary over time would have been obvious to one of ordinary skill in the art at the time of the claimed invention.

Independent claim 10 is word for word identical to independent claim 10 of issued U.S. Patent No. 6,671,413 except for the recitation of "blocks" of data representing an image. While the issued claim did not explicitly recite blocks, the processing of the image data is done according to blocks of image data, as described for example in the specification on column 4, lines 48-56.

Lei discloses a quad-tree embedded image compression and decompression method and apparatus which provides for using blocks of data representing an image, each block comprising a data set, uses a list of insignificant sets (LIS) and a list of significant pixels (LSP) (refer for example to column 4, lines 36-48 and column 3, line 65 through column 4, line 8) .

Given the teachings of the two references and the same environment of operation, namely that of encoding and decoding blocks of image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for encoding and decoding blocks of data representing an image, each block comprising a data set as taught by Lei in U.S. Patent No. 6,671,413. This is an engineering design, providing for increased encoding and decoding efficiency as well as increased image quality as suggested by Lei (refer for example to column 2, lines 9-17 and 46-52), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

Newly presented independent claims 23 and 32 are similar in scope to independent claims 1 and 10 of issued U.S. Patent No. 6,671,413. The main differences been that in claim 23 the preamble recites "a computer readable medium having computer readable program codes embodied therein for encoding and decoding a data set representing an image" and that in claim 32 the preamble recites "an image having at least two dimension".

Lei discloses a quad-tree embedded image compression and decompression method and apparatus which provides for using computer readable codes embodied

therein for encoding and decoding a data set representing an image, which image is at least two-dimensional (see figures 5 and 7 and for example to column 3, lines 30-38) .

Given the teachings of the two references and the same environment of operation, namely that of encoding and decoding blocks of image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for using computer readable codes embodied therein for encoding and decoding a data set representing an image, which image is at least two-dimensional as taught by Lei in U.S. Patent No. 6,671,413. This is an engineering design, providing for increased encoding and decoding efficiency as well as increased image quality as suggested by Lei (refer for example to column 2, lines 9-17 and 46-52), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

Newly presented claims 24-31 of the present application are word for word the same as claims 2-9 of issued U.S. Patent No. 6,671,413.

Claims 33 recites "the image comprises a sequence of images", and claim 34 recites "the image comprises a fixed three-dimensional image".

Lei discloses a quad-tree embedded image compression and decompression method and apparatus which provides for the image comprises a sequence of images an the image comprises a fixed three-dimensional image (refer for example to column 3, lines 10-18, the sequence of images is met by the progressive image transmission for example, and the three-dimensional image is met the images found in internet browsing or video databases for example) .

Given the teachings of the two references and the same environment of operation, namely that of encoding and decoding blocks of image data, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for the image comprises a sequence of images an the image comprises a fixed three-dimensional image as taught by Lei in U.S. Patent No. 6,671,413. This is an engineering design, providing for increased encoding and decoding efficiency as well as increased image quality as suggested by Lei (refer for example to column 2, lines 9-17 and 46-52), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> **(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

4. Claims 15-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Zandi et al. (U.S. Patent No. 5,748,786).

As to claim 15, Zandi describes a recording medium storing computer readable instructions for converting a general purpose computer into a hierarchical image coder (refer for example to column 29, lines 45-53 for a general description of the hardware/software [the software would meet the computer readable instructions, which would be stored in a recording medium such as memory associated with the

microprocessor] and figures 25 and 28 which illustrate the hierarchical image coder), wherein the image coder is a low-complexity image coder which generates embedded bit stream suitable for progressive transmission wherein the embedded bit stream can be used to decode the image at any rate less than or equal to the coded rate to provide the best image reconstruction possible with the particular coding scheme (refer for example to column 14 , line 57 through column 15, line 54). This portion of Zandi discusses progressive transmission as well as hierarchical decompression. Progressive transmission provides for sending certain parts of the image before others, e.g. low frequency portions before high frequency portions. Hierarchical decompression provides for decompressing certain portions of the image before others. The portions decompressed first, must by scientific physical necessity be decompressed at any rate less than or equal to the coded rate. Zandi also discusses the "rate of compression" which would be desired to provide the best image reconstruction possible with the particular coding scheme (refer for example to column 41, lines 51-61).

In regard to claim 16, Zandi describes wherein the computer readable instructions permit the general purpose computer to repeatedly store and release data representing blocks of an image being encoded to thereby permit the hierarchical image coder to process an image larger in size than available coder computer memory (refer for example to column 30, line 55 through column 31, line 45). In this portion of Zandi, there is a discussion of memory usage. Zandi clearly describes that "a full frame buffer is not necessary for the present invention to implement a one-pass system" and that "the memory required to compress an image is independent of the length of the image.

By removing the dependency, the present invention provides a system that can output compressed data before all of the data has been processed". What this means is that an image larger in size that available decoder computer memory will be accommodated because it will be processed in stages, i.e. before all the data has been processed. The specific details as to how the computer repeatedly stores and releases data representing blocks of an image being encoded is discussed in column 31, line 47 through column 32, line 49.

With regard to claim 17, Zandi describes wherein the computer readable instructions permit the hierarchical image coder to perform both lossy and lossless compression (refer for example to column 2, lines 29-31). A coder used in the Zandi is depicted in figures 25 and 28 (refer to column 16, lines 42-44 for a general description of the figures, and column 16, line 45 through column 17, line 25 for specific details of figure 25, and column 19, line 41 through column 20, line 21 for specific details of figure 28).

As to claim 18, Zandi describes wherein the computer readable instructions permit the hierarchical image coder to perform both lossy and lossless compression without sorting (refer for example to column 2, lines 29-31 and column 15, line 55 through column 16, line 39). The first cited portion describes the present invention to be capable of performing both lossy and lossless compression. The second cited portion discusses the various ways the data is encoded. It describes formatting the data by sorting prior to using different methods of encoding. It also describes that lists of coefficients are used, which lists keep track of the sorted coefficients. The very last few

lines of the second cited portion discuss that lists are not used and therefore coefficients are not sorted, thus meeting the claim requirement.

In regard to claim 19, Zandi describes a recording medium storing computer readable instructions for converting a general purpose computer into a hierarchical image decoder (refer for example to column 29, lines 45-53 for a general description of the hardware/software [the software would meet the computer readable instructions, which would be stored in a recording medium such as memory associated with the microprocessor] and figures 26 and 29 which illustrate the hierarchical image decoder), wherein the image decoder is a low-complexity image decoder which reconstructs an image from a selectively embedded bit stream transmitted by progressive transmission (refer for example to column 14 , line 57 through column 15, line 54). This portion of Zandi discusses progressive transmission as well as hierarchical decompression. Progressive transmission provides for sending certain parts of the image before others, e.g. low frequency portions before high frequency portions. Hierarchical decompression provides for decompressing certain portions of the image before others.

With regard to claim 20, Zandi describes wherein the computer readable instructions permit the general purpose computer to repeatedly store and release data representing blocks of a image being decode to thereby permit the hierarchical image coder to reconstruct an image larger in size than available decoder computer memory (refer for example to column 30, line 55 through column 31, line 45). In this portion of Zandi, there is a discussion of memory usage. Zandi clearly describes that "a full frame buffer is not necessary for the present invention to implement a one-pass system" and

that "the memory required to compress an image is independent of the length of the image. By removing the dependency, the present invention provides a system that can output compressed data before all of the data has been processed". What this means is that an image larger in size that available decoder computer memory will be accommodated because it will be processed in stages, i.e. before all the data has been processed. The specific details as to how the computer repeatedly stores and releases data representing blocks of an image being decoded is discussed for example in column 20, lines 22-67.

As to claim 21, Zandi describes wherein the computer readable instructions permit the hierarchical image decoder to reconstruct images from the selectively embedded bit stream irrespective or whether the selectively embedded bit stream represents either lossy or lossless compression (refer for example to column 2, lines 29-31). A decoder used in the Zandi is depicted in figures 26 and 29 (refer to column 16, lines 42-44 for a general description of the figures, and column 17, line 26 through column 18, line 5 for specific details of figure 26, and column 20, line 22 through column 21, line 3 for specific details of figure 29)

With regard to claim 22, Zandi describes wherein the computer readable instructions permit the hierarchical image decoder to perform both lossy and lossless compression without sorting (refer for example to column 2, lines 29-31 and column 15, line 55 through column 16, line 39). The first cited portion describes the present invention to be capable of performing both lossy and lossless compression. The second cited portion discusses the various ways the data is encoded. It describes formatting the

data by sorting prior to using different methods of encoding. It also describes that lists of coefficients are used, which lists keep track of the sorted coefficients. The very last few lines of the second cited portion discuss that lists are not used and therefore coefficients are not sorted, thus meeting the claim requirement.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Said et al, Li, Lei et al. and Jeong all disclose systems similar to applicant's claimed invention.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose L. Couso whose telephone number is (703) 305-4774. The examiner can normally be reached on Monday through Friday from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOSE L. COUSO
PRIMARY EXAMINER

Jlc
October 22, 2004